What is claimed is:

1. A high-pressure discharge lamp comprising:

an outer casing of quartz glass filled with mercury, an inactive gas, and a halogen gas;

a pair of electrodes disposed in said outer casing and coupled to respective sealing metal foil members;

each of said electrodes comprising a metal rod and a metal wire closely wound around said metal rod, said electrode having a semispherical or truncated conical tip end with a smooth surface in the shape of a solid of revolution, with a nipple disposed on the distal end of said tip end.

2. A high-pressure discharge lamp according to claim 1, wherein said mercury is present in an amount ranging from 0.12 to 0.30 mg/mm^3 and at least one of Cl, Br, and I is present as said halogen gas in an amount ranging from 10^{-8} through 10^{-2} $\mu mol/mm^3$.

3. A high-pressure discharge lamp according to claim 1, wherein said tip end and said nipple are formed by a YAG laser beam machining process.

4. A high-pressure discharge lamp according to claim 2, wherein said tip end and said nipple are formed by a YAG laser beam machining process.

5. A high-pressure discharge lamp according to claim 1, wherein a ratio between diameter D2 of proximal end of said nipple and diameter D1 of base portion of said tip end is in the range of $0.15 \leqq D2/D1 \leqq 0.3$.

6. A high-pressure discharge lamp according to claim 2, wherein a ratio between diameter D2 of proximal end of said nipple and diameter D1 of base portion of said tip end is in the range of $0.15 \leqq D2/D1 \leqq 0.3$.

7. A high-pressure discharge lamp according to claim 3, wherein a ratio between diameter D2 of proximal end of said nipple and diameter D1 of base portion of said tip end is in the range of $0.15 \leqq D2/D1 \leqq 0.3$.

8. A high-pressure discharge lamp according to claim 1, wherein a ratio between length L2 of said nipple and length L1 of tip end is in the range of $0.2 \leqq L2/L1 \leqq 0.4$.

9. A high-pressure discharge lamp according to claim 2, wherein a ratio between length L2 of said nipple and length L1 of tip end is in the range of $0.2 \leqq L2/L1 \leqq 0.4$.

10. A high-pressure discharge lamp according to claim 3, wherein a ratio between length L2 of said nipple and length L1 of tip end is in the range of $0.2 \leqq L2/L1 \leqq 0.4$.

11. A high-pressure discharge lamp according to claim 4, wherein a ratio between length L2 of said nipple and length L1 of tip end is in the range of $0.2 \leqq L2/L1 \leqq 0.4$.

12. A high-pressure discharge lamp according to claim 1, wherein a ratio between volume (V2) of tip end including said nipple and total volume (V1) of electrode including coil and tip end is in the range of $0.2 \leqq V2/V1 \leqq 0.4$.

13. A high-pressure discharge lamp according to claim 2, wherein a ratio between volume (V2) of tip end including said nipple and total volume (V1) of electrode including coil and tip end is in the range of $0.2 \leqq V2/V1 \leqq 0.4$.

14. A high-pressure discharge lamp according to claim 3, wherein a ratio between volume (V2) of tip end including said nipple and total volume (V1) of electrode including coil and tip end is in the range of $0.2 \leqq V2/V1 \leqq 0.4$.

15. A high-pressure discharge lamp according to claim 4, wherein a ratio between volume (V2) of tip end including said nipple and total volume (V1) of electrode including coil and tip end is in the range of $0.2 \leqq V2/V1 \leqq 0.4$.

16. A high-pressure discharge lamp according to claim 5, wherein a ratio between volume (V2) of tip end including said nipple and total volume (V1) of electrode including coil and tip end is in the range of $0.2 \leqq V2/V1 \leqq 0.4$.

17. A method of manufacturing a high-pressure discharge lamp, comprising the steps of:

combining an electrode metal rod and a heat radiating coil into an electrode assembly with a dedicated jig;

placing said electrode assembly on a predetermined jig;

machining said electrode assembly with a YAG laser beam while said electrode assembly is in rotation, to turn the tip end of said coil into a solid of revolution with a smooth surface, leaving a central region of the tip end of the metal rod, thus producing a melted tip end; and

machining the left central region of the tip end of the metal rod into a nipple.